growing organs is of importance in determining the character and amount of their respiration.

The author's conclusions are as follows: "In young organs, principally leaves, intramolecular combustions are more complete than in older organs; young tissues consume much more oxygen than those completely developed, fix relatively less, and thus set at liberty greater quantities of energy, which they use in growth."—G. T. HARRINGTON.

Catalase, respiration, and vitamines.—DUTCHER[16] finds that the catalase activity of polyneuritic pigeons is very low, and that it rises to normal when the fowl is fed water soluble vitamine. His results are given in the following table:

CATALASE ACTIVITY OF TISSUES

Tissue	Polyneuritic pigeons, percentage of normal	Polyneuritic pigeons receiving water soluble vitamine, percentage of normal
Liver	44	110
Kidney	53	102
Pancreas	33	115
Heart	34	86
Breast	13	152
Lung	57	84
Blood	75	56
Average	44	101

The author says: "It is probable that polyneuritis is accompanied by incomplete or partial oxidation, with accumulation in the tissues of products of incomplete oxidation. It is also probable that water soluble vitamines function, directly or indirectly, in stimulation of oxidation processes, thereby clearing the tissues of toxic materials. When pigeon tissues are arranged in the order of their catalase content (as measured by the oxygen liberated from hydrogen peroxide), tissues group themselves in the order of their metabolic activity and also in the order of their content of water soluble vitamine."

APPLEMAN[17], in a recently published article, says: "Respiration in sweet corn in the milk stage is very high when the corn is first pulled. This high rate of respiratory activity falls off rapidly with storage. Catalase activity in a collateral set of ears showed a decline with storage, which is almost directly proportional to the decline in respiratory intensity after a like period of storage. The catalase activity of the expressed juice from both sweet corn and potato

[16] DUTCHER, R. ADAMS, Vitamine studies. I. Observations on the catalase activity of tissues in avian polyneuritis. Jour. Biol. Chem. **36**:63–72. 1918.

[17] APPLEMAN, C. O., Respiration and catalase activity in sweet corn. Amer. Jour. Botany **5**:207–209. 1918.

tubers is a fair index of the comparative intensity of respiration in the tissues. The data from both plant and animal tissues available at the present seem to justify the general indication that catalase action is invariably correlated with the oxidative processes involved in respiration."—WM. CROCKER.

Respiration of stored wheat.—BAILEY and GURJAR[18] have done an excellent piece of work on the respiration of stored wheat. Significant literature is well presented and related to the work in hand, and the methods used in the work are clean cut and exact. The contribution has a very important application in the shipping and storage of grains. They worked with moisture contents ranging from 12 to 18 per cent, such as appear in the practical handling of grains. The following are the more important results.

Respiration gradually and fairly uniformly rises with moisture content up to 14.5 per cent in case of plump spring wheat. With the rise of moisture above this percentage the respiration is markedly accelerated. The soft starchy wheats respire more rapidly than the hard vitreous wheats containing the same percentage of moisture. With more than 14 per cent moisture shriveled wheat respires 2 to 3 times as fast as plump wheat of the same water content, due to a larger percentage of embryo in the shriveled grains; with less than 14 per cent moisture there is little difference.

Freshly dampened wheat respires more slowly than wheat of the same water content that has been dampened for a long time or that has been naturally dampened. The difference is noticeable at 13 per cent moisture, and rises as the moisture rises. Wheat stored at room temperature respires more rapidly than that of the same moisture content at lower out-door temperatures. Unsoundness of wheat caused by the freezing of unripe plants increases respiration. This is attributed to the accumulation of glucose in the frosted grains. Increased temperature increases the respiration up to 55° C. When seeds are stored in closed chambers and the respiration taken by 4-day periods, the rate is highest for the first period and diminishes materially in successive periods as the carbon dioxide content rises. The respiration is also reduced in an oxygen free atmosphere, the ratio to that occurring in a normal atmosphere being about 1:2.5.

Many will think the author's evidence for their viscosity conception of limited respiration is insufficient. They will also question whether the amount of glucose present limits respiration when low moisture has already run respiration to so low an ebb.—WM. CROCKER.

Relation of host and parasite among fungi.—An excellent service has been rendered by REED[19] in bringing together the extensive and scattered data regarding the susceptibility of more or less related hosts to physiological strains

[18] BAILEY, C. H., and GURJAR, A. M., Respiration of stored wheat. Jour. Agric. Research 12:685–713. 1918.

[19] REED, GEORGE M., Physiological specialization of parasitic fungi. Mem. Brooklyn Bot. Gard. 1:348–409. 1918.